STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

REPORT OF EXAMINATION
TO APPROPRIATE PUBLIC WATERS OF THE STATE OF WASHINGTON

☐ Surface Water (Issued in accordance with the provisions of Chapter 117, Laws of Washington for 1917, and amendments thereto, and the rules and regulations of the Department of Ecology.)

☒ Ground Water (Issued in accordance with the provisions of Chapter 263, Laws of Washington for 1945, and amendments thereto, and the rules and regulations of the Department of Ecology.)

PRIORITY DATE	APPLICATION NUMBER	PERMIT NUMBER	CERTIFICATE NUMBER
December 2, 1992	G2-28697		

NAME
Spanaway Water Company

ADDRESS (STREET)	(CITY)	(STATE)	(ZIP CODE)
PO Box 608	Spanaway	Washington	98387-0608

PUBLIC WATERS TO BE APPROPRIATED

SOURCE
Well 6

TRIBUTARY OF (IF SURFACE WATERS)

MAXIMUM CUBIC FEET PER SECOND	MAXIMUM GALLONS PER MINUTE	MAXIMUM ACRE FEET PER YEAR
	1200 (Non-additive)	1290 (Supplemental)

QUANTITY, TYPE OF USE, PERIOD OF USE		
1290 Acre-feet per year	Municipal supply	Year-round, as needed

LOCATION OF DIVERSION/WITHDRAWAL

APPROXIMATE LOCATION OF DIVERSION--WITHDRAWAL
1240 feet South and 1068 feet West of the Northeast corner of Section 27.

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION)	SECTION	TOWNSHIP N.	RANGE, (E. OR W.) W.M.	W.R.I.A.	COUNTY
NE¼ NE¼	27	19	3E	12	Pierce

RECORDED PLATTED PROPERTY

LOT	BLOCK	OF (GIVE NAME OF PLAT OR ADDITION)

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED

Area served by Spanaway Water as described in a Department of Health Approved Water System Plan including all interties.

DESCRIPTION OF PROPOSED WORKS

Proposed Well 6

DEVELOPMENT SCHEDULE

BEGIN PROJECT BY THIS DATE:	COMPLETE PROJECT BY THIS DATE:	WATER PUT TO FULL USE BY THIS DATE:
June 1, 1999	June 1, 2000	June 1, 2010

REPORT

BACKGROUND:

On December 2, 1992, the Spanaway Water Company applied to the Department of Ecology for a permit to appropriate public ground water from a well at a withdrawal rate of 1,200 gallons per minute (gpm), for municipal supply. The application was assigned number G2-28697.

A legal notice of the proposed appropriation was published, and no objections were received.

Based on my investigation, I recommend approval of the requested permit.

INVESTIGATIONS:

In consideration of this application, I reviewed the information submitted by the Spanaway Water Company, along with pertinent state records such as well drilling reports and recorded water rights. Jeff Johnson, the water system manager, and I visited the well site and toured Spanaway Water's service area on September 27, 1995.

Documents reviewed included the *Draft Initial Watershed Assessment Water Resources Inventory Area 12 Clover-Chambers Creek Watershed, March 15, 1995,* the *Water Rights Investigation for Water Cooperative of Pierce County, August 1995,* prepared by Robinson & Noble, Inc., and the document entitled, *Clover/Chambers Creek Geohydrologic Study for Tacoma-Pierce County Health Department, July 1985,* prepared by Brown and Caldwell.

The intent of this application is to secure a permit to add proposed Well 6 to the integrated Spanaway Water Company system.

Project Description

The Spanaway Water Company system serves the unincorporated area located in Pierce County, Washington, east of the McChord Air Force base, and south of the Parkland area. This service area is located within the Clover/Chambers Creek Water Resource Inventory Area 12. The Spanaway system serves a population of approximately 17,000 residents, with approximately 5,800 service connections.

The water company wishes to construct Well 6 in an proposed development known as Clarewood. The well will be completed in the Sea-level Aquifer and operated in concert with nearby production Well 7.

Protection of Instream Flows

No minimum instream flow requirements have been established for this watershed. However, *WAC 173-512* closed Chambers, Clover, and Sequalitchew Creeks, and their tributaries to further consumptive water withdrawals.

In water allocation decisions relating to ground water withdrawals, the rule directs the Department of Ecology to fully consider the natural interrelationship of surface and ground water, to ensure compliance with the intent of the chapter (WAC 173-512-040).

Hydrogeology

The aquifer system in the Chambers/Clover Creek basin consists of alternating layers of higher and lower permeability deposits, mainly glacial outwash alternating with layers of till and non-glacial clay and silt. In the *Clover/Chambers Geohydrologic Study,* these layers are denoted as layers A through G. The major aquifers are the glacially deposited layers A, C, and E. Lower permeability aquitards B, D, and F are non-glacial in origin.

The uppermost aquifer, layer A, was deposited by the Vashon glacier, and is one of the most productive aquifers in the watershed. It is commonly referred to as the "shallow aquifer".

Layer C is also referred to as the Sea-level aquifer, and throughout most of the basin it is considered to be confined, thus somewhat separate from the shallower system. Another highly productive aquifer occurs in layer E, and is termed the "deep aquifer". The deep aquifer is located beneath several confining layers, and is often distinguished by high levels of iron and manganese.

Cross-sections in the *Clover/Chambers Basin Ground Water Management Program* (Brown and Caldwell, 1985) show that the river valleys cut by Clover Creek and Chambers Creek generally do not pass though the first confining layer beneath the Vashon-aged deposits. However, each hydrologic layer is saturated and pumping in any of the aquifer zones has the potential to affect surface water flow through leakage and ground water capture.

DISCUSSION:

Spanaway proposes to construct Well 6 in aquifer layer C. Hydrostratigraphic cross-sections of the regional aquifer system presented by Brown and Caldwell indicate that this aquifer system should be present at this site.

However, the hydrogeology of this area is varied, and it is difficult to predict which units will be present at the drilling site until the well is constructed. While it is believed that ground water movement in the deeper system (Layers C and E in the Spanaway area) is westerly, and discharges to Puget Sound rather than to the shallow surface water system, there is also the possibility that a significant confining layer between the shallow and sea-level systems will not be encountered.

Additionally, the stratified aquifer systems are saturated and pumping from the Sea-level Aquifer will cause a reduction in head in the uppermost systems, a situation which reduces the ground water contribution of the basin's surface water system.

The Department of Ecology has determined that additional consumptive withdrawals of ground water within the Clover-Chambers Creek watershed will impair surface water. Additional water rights may not be issued, unless they can be adequately mitigated or operated in concert with previously issued rights so as not to impair surface water flow.

The Spanaway Water Company operates Well 7 which is located approximately a half mile to the southwest. The use of Well 7 is authorized by ground water certificate G2-20182, issued for 3,000 gpm and 2,400 acre-feet per year, supplemental to existing rights. Well 7 is completed in the sea-level aquifer and is fully functional, but Spanaway Water has determined that the proposed Well 6 site is a better location for system performance.

My recommendation that a permit be issued for proposed Well 6 is contingent on the permit being entirely supplemental both in instantaneous withdrawal rate and annual quantities to certificate G2-20182. Provided that the wells are operated in such a manner as not to exceed those quantities already authorized by Well 7, there should be no additional impairment to existing rights or instream flows.

Existing Water Rights

Spanaway Water holds the following water rights to operate a total of 11 active production wells:

WR #	GPM	AC-FT Primary	AC-FT Supp.	Well No.
4851-A	252	403	0	1
G2-20178	500	400	0	3
G2-20180	550	213	227	5
G2-26091	90	27	0	Shaffer 1
G2-26991	800	31	27	Shaffer 2
G2-27957	800	0	9	Shaffer 2
G2-20177	1,000	800	0	2
G2-27245	900	160	560	2A
G2-20182	3,000	204	2,400	7
G2-24502	465	619	125	8
G2-25963	1,250	145	1,015	9
G2-27958	1,200	1,060	0	4
Totals		4,062	4,363	

Current Annual Water Use/Demand Projection

Between 1990 and 1995 the Spanaway Water Company produced an average of 2,879 acre-feet per year, with a maximum production of 3,075 acre-feet in 1994. This quantity slightly exceeded the company's rights at the time.

Currently the water company has over 6,000 active service connections. The company's 1994 Comprehensive Water System Plan provides estimates of future demand. The population projection and future water demand for the year 2000 amounts to approximately 3,655 acre-feet per year. For the year 2010, total demand was estimated to amount to approximately 4,065 acre-feet per year. It should be noted that since the approval of the 1994 plan, zoning has changed in the Spanaway service area and the projected number of services is likely to increase.

Conservation program

Under RCW 90.03.005 and 90.54.020(6), the Department of Ecology must emphasize conservation and water use efficiency in the management of the state's water resources, and must reduce the waste of water as far as practicable. Spanaway Water has an ongoing conservation program, including a vigorous leak detection program and progressive fee structuring. In recent years the utility has dramatically reduced the amount of unaccounted for water leaving the system. The company's water conservation plan document has been submitted for Department of Health (DOH) approval. Issuance of this permit will require fulfillment of any conditions specified by DOH for approval of the plan, and will require implementation of the approved program.

Quantities for permit

The permit for proposed Well 6 is issued entirely supplemental to quantities authorized by certificate G2-20182. The combined withdrawal under both rights may not exceed 3,000 gpm, and the annual quantity pumped may not exceed 2,400 acre-feet per year.

A withdrawal rate of 1,200 gpm will be authorized as the interim production rate for this proposed well. Based on an average 16 hour production day at this withdrawal rate, Well 6 should be able to produce 1,290 acre-feet per year. The applicant is reminded that the final withdrawal rate will be based on the system's capacity, and may be reduced to reflect a safe, sustainable yield.

CONCLUSIONS:

In accordance with Chapters 90.03 and 90.44 RCW, I find that water is available from the source in question, and that the appropriation, as recommended below, is for a beneficial use and should not impair senior rights or be detrimental to the public welfare.

RECOMMENDATIONS:

I recommend that this application be approved and a permit be issued to allow appropriation of 1,200 gpm, 1,290 acre-feet per year from Well 6 for municipal supply, supplemental to G2-20182.

The permit shall be subject to the following provisions:

Provisions

"This permit is issued entirely supplemental to quantities authorized by certificate G2-20182. Combined, under both rights the withdrawal rate may not exceed 3,000 gpm, and the annual quantity pumped may not exceed 2,400 acre-feet per year."

All wells constructed in the State shall meet the construction requirements of Chapter 173-160 WAC entitled "Minimum Standards for the Construction and Maintenance of Wells" and Chapter 18-104 RCW entitled "Water Well Construction, Act (1971)."

"Withdrawals from Well 6 shall be managed by the permittee so as to avoid an ongoing, progressive decline of water levels from year to year."

Water-pumpage, well-monitoring, and static-water-level data, along with a summary and analysis of the data, shall be submitted annually, or more frequently upon request, to Ecology's Southwest Regional Office Water Resources Program. The data shall be submitted in digital format (ASCII) and shall include the following elements:

For Water Use Reporting:

1. Measurement method (totaling meter, acoustic meter, etc.) for each well
2. Total volume pumped from each well by month in thousands or millions of gallons
3. Unique Well ID number

For Water Level Reporting:

1. Unique Well ID Number
2. Measurement date and time
3. Measurement method (air line, electric tape, pressure transducer, etc.)
4. Well status (pumping, recently pumped, etc.)
5. Water level accuracy (to nearest foot, tenth of foot, etc.)
6. Description of the measuring point (top of casing, sounding tube, etc.)
7. Measuring point elevation above or below land surface to the nearest 0.1 foot
8. Land surface elevation at the well head to the nearest foot.
9. Static water level below measuring point to the nearest 0.1 foot.

The water appropriated under this application will be used for public water supply. The State Board of Health rules require public water supply owners to obtain written approval from the Office of Water Supply, Department of Health, 1112 SE Quince Street, PO Box 47890, Olympia, Washington 98504-7890, prior to any new construction or alterations of a public water supply system.

Issuance of this water right is subject to the implementation of the minimum requirements established in the Conservation Planning Requirements, Guideline and Requirements for Public Water Systems Regarding Water Use Reporting, Demand Forecasting Methodology, and Conservation Programs, July 1994, and as revised.

Under RCW 90.03.005 and 90.54.020(6), conservation and improved water use efficiency must be emphasized in the management of the states water resources, and must be considered as a potential new source of water. Accordingly, as part of the terms of this water right, the applicant shall prepare and implement a water conservation plan approved by Department of Health. The standards for such a plan may be obtained from either the Department of Health or the Department of Ecology.

"Pursuant to RCW 90.03.330 and 90.44.080, a final certificate will be issued upon a showing satisfactory to the Department of Ecology that the appropriation has been perfected in compliance with the terms of the subject permit. The certificated withdrawal rate and annual quantity will reflect a sustainable yield and protection of senior rights, within the amounts specified on the permit. Monitoring and data submittal will be required under the certificate as well as the permit."

REPORTED BY: Jill E Walsh Date: July 10, 1998

The statutory permit fee for this application is $20.00.

FINDINGS OF FACT AND DECISION

Upon reviewing the above report, I find all facts, relevant and material to the subject application, have been thoroughly investigated. Furthermore, I find water is available for appropriation and the appropriation as recommended is a beneficial use and will not be detrimental to existing rights or the public welfare.

Therefore, I ORDER a permit be issued under Ground Water Application Number G2-28697, subject to existing rights and indicated provisions, to allow appropriation of public ground water for the amount and uses specified in the foregoing report.

Signed at Olympia, Washington, this 10th day of July, 1998.

J. Mike Harris
Water Resources Supervisor
Southwest Regional Office